

AUTHOR INDEX

- Ainsworth, D.M., Smith, C.A., Eicker, S.W., Henderson, K.S. and Dempsey, J.A., The effects of locomotion on respiratory muscle activity in the awake dog, 145
- Ainsworth, D.M., Smith, C.A., Eicker, S.W., Henderson, K.S. and Dempsey, J.A., The effects of chemical versus locomotory stimuli on respiratory muscle activity in the awake dog, 163
- Arad, Z., Changes in eggshell water vapour conductance during shell formation in the chicken, 197
- Bartlett, Jr., D., see Furilla, R. A., 207
- Bates, J.H.T., Shardonofsky, F. and Stewart, D.E., The low-frequency dependence of respiratory system resistance and elastance in normal dogs, 369
- Bates, J.H.T., see Kochi, T., 243
- Bellofiore, S., see Ludwig, M.S., 297
- Berkenbosch, A., see Olievier, C.N., 391
- Berry, M.J., Puntenney, P.J. and Sandt, L.A., Ventilatory responses during varied stride and pedal frequencies, 219
- Brigham, K.L., see Shields, G.W., 135
- Brimioulle, S., see Lejeune, P., 123
- Burggren, W.W., see Hou, P-C.L., 265
- Carlisle, H.J., see Refinetti, R., 1
- Chamberlain, M.J., see Pityn, P., 19
- Chernick, V., see Jansen, A.H., 187
- Conway, J., see Paterson, D.J., 323
- Cureton, K.J., see Warren, G.L., 253
- Davies, D.G., Distribution of systemic blood flow during anoxia in the turtle, *Chrysemys scripta*, 383
- DeGoede, J., see Olievier, C.N., 391
- Dejours, P., see Ishii, K., 73
- Dempsey, J.A., see Ainsworth, D.M., 145
- Dempsey, J.A., see Ainsworth, D.M., 163
- Douse, M.A., Powell, F.L., Milsom, W.K. and Mitchell, G.S., Temperature effects on pulmonary receptor responses to airway pressure and CO₂ in *Alligator mississippiensis*, 331
- Duke, S.S., see Shields, G.W., 135
- Eicker, S.W., see Ainsworth, D.M., 145
- Eicker, S.W., see Ainsworth, D.M., 163
- Fraser, T.M., see Pityn, P., 19
- Furilla, R. A. and Bartlett, Jr., D., Intrapulmonary CO₂ inhibits inspiration in garter snakes, 207
- Ganesan, S., Lai-Fook, S.J. and Schürch, S., Alveolar liquid pressures in nonedematous and kerosene-washed rabbit lungs by micropuncture, 281
- Gillette, A.W., see Shields, G.W., 135
- Gray, A.T., see Powell, F.L., 83
- Greer, J.J. and Stein, R.B., Length changes of intercostal muscles during respiration in the cat, 309
- Halleman, R., see Lejeune, P., 123
- Henderson, K.S., see Ainsworth, D.M., 145
- Henderson, K.S., see Ainsworth, D.M., 163
- Hida, W., see Sasaki, M., 177
- Horvath, S.M., see Refinetti, R., 1
- Hou, P-C.L. and Burggren, W.W., Interaction of allometry and development in the mouse *Mus musculus*: heart rate and hematology, 265
- Iijima, H., see Ishii, M., 107
- Inaba, H., see Ishii, M., 107
- Inoue, H., see Ishii, M., 107
- Ioffo, S., see Jansen, A.H., 187
- Ishihara, H., see Ishii, M., 107
- Ishii, K., Ishii, K., Massabuau, J.-C. and Dejours, P., Oxygen-sensitive chemoreceptors in the branchio-cardiac veins of the crayfish, *Astacus leptodactylus*, 73
- Ishii, K., see Ishii, K., 73
- Ishii, M., Iijima, H., Katsumata, U., Shimizu, Y., Inoue, H., Sasaki, H., Takishima, T.,

- Ishihara, H., Kobayashi, T., Ito, H. and Inaba, H., Direct write-out of particle size distribution of inhaled aerosol deposition using a laser scattering method, 107
- Ito, H., see Ishii, M., 107
- Jansen, A.H., Ioffo, S. and Chernick, V., Influence of naloxone on fetal breathing and the respiratory response to hypercapnia, 187
- Katsumata, U., see Ishii, M., 107
- King, M., see Pityn, P., 19
- Kobayashi, H., Pelster, B. and Scheid, P., Solute back-diffusion raises the gas concentrating efficiency in counter-current flow, 59
- Kobayashi, H., Pelster, B. and Scheid, P., Water and lactate movement in the swimbladder of the eel, *Anguilla anguilla*, 45
- Kobayashi, T., see Ishii, M., 107
- Kochi, T., Bates, J.H.T., Okubo, S., Petersen, E.S. and Milic-Emili, J., Respiratory mechanics determined by flow interruption during passive expiration in cats, 243
- Lai-Fook, S.J., see Ganesan, S., 281
- Lanthier, C., see Mortola, J.P., 31
- Leeman, M., see Lejeune, P., 123
- Lejeune, P., Vachiery, J-L., Leeman, M., Brimiouille, S., Hallemans, R., Melot, C. and Naeije, R., Absence of parasympathetic control of pulmonary vascular pressure-flow plots in hyperoxic and hypoxic dogs, 123
- Ludwig, M.S., Bellofiore, S., Powell, W.S. and Martin, J.G., Regional variability in the response of collateral resistance to histamine in the dog: effects of cyclooxygenase inhibition, 297
- Malcom, A.W., see Shields, G.W., 135
- Malte, H., Pressure/flow relations in the interlamellar space of fish gills: theory and application in the rainbow trout, 229
- Martin, J.G., see Ludwig, M.S., 297
- Massabuau, J.-C., see Ishii, K., 73
- Melot, C., see Lejeune, P., 123
- Mercier, J., see Ramontxo, M., 345
- Meyrick, B.O., see Shields, G.W., 135
- Milic-Emili, J., see Kochi, T., 243
- Milsom, W.K., see Douse, M.A., 331
- Mitchell, G.S., see Douse, M.A., 331
- Morgan, W.K.C., see Pityn, P., 19
- Mortola, J.P., Rezzonico, R. and Lanthier, C., Ventilation and oxygen consumption during acute hypoxia in newborn mammals: a comparative analysis, 31
- Naeije, R., see Lejeune, P., 123
- Nakamura, M., see Sasaki, M., 177
- Newman, J.H., see Shields, G.W., 135
- Okubo, S., see Kochi, T., 243
- Olievier, C.N., Berkenbosch, A. and DeGoede, J., Almitrine and the peripheral ventilatory response to CO₂ in hyperoxia and hypoxia, 391
- Paterson, D.J., Robbins, P.A. and Conway, J., Changes in arterial plasma potassium and ventilation during exercise in man, 323
- Pelster, B., see Kobayashi, H., 45
- Pelster, B., see Kobayashi, H., 59
- Petersen, E.S., see Kochi, T., 243
- Pityn, P., Chamberlain, M.J., Fraser, T.M., King, M. and Morgan, W.K.C., The topography of particle deposition in the human lung, 19
- Powell, F.L. and Gray, A.T., Ventilation-perfusion relationships in alligators, 83
- Powell, F.L., see Douse, M.A., 331
- Powell, W.S., see Ludwig, M.S., 297
- Prefaut, C., see Ramontxo, M., 345
- Puntenney, P.J., see Berry, M.J., 219
- Ramontxo, M., Mercier, J. and Prefaut, C., Relationship between aerobic physical fitness and ventilatory control during exercise in young swimmers, 345
- Refinetti, R., Carlisle, H.J. and Horvath, S.M., Respiratory gaseous exchange in the Zucker rat, 1
- Rezzonico, R., see Mortola, J.P., 31
- Robbins, P.A., see Paterson, D.J., 323
- Robertshaw, D., see Schroter, R.C., 95
- Sandt, L.A., see Berry, M.J., 219
- Sarelisu, I.H., Microcirculation in striated muscle after acute reduction in systemic hematocrit, 7
- Sasaki, H., see Ishii, M., 107
- Sasaki, H., see Sasaki, M., 177
- Sasaki, M., Yamaya, M., Hida, W., Nakamura, M., Sasaki, T., Sasaki, H. and Takishima, T., Effect of hypercapnia on ventilatory response

- to intravenous nicotine administration in anesthetized dogs, 177
- Sasaki, T., see Sasaki, M., 177
- Scheid, P., see Kobayashi, H., 45
- Scheid, P., see Kobayashi, H., 59
- Schroter, R.C. and Watkins, N.V., Respiratory heat exchange in mammals, 357
- Schroter, R.C., Robertshaw, D. and Zine Filali, R., Brain cooling and respiratory heat exchange in camels during rest and exercise, 95
- Schürch, S., see Ganesan, S., 281
- Shardonofsky, F., see Bates, J.H.T., 369
- Sheller, J.R., see Shields, G.W., 135
- Shields, G.W., Sheller, J.R., Newman, J.H., Duke, S.S., Gillette, A.W., Malcom, A.W., Meyrick, B.O. and Bringham, K.L., Airway responsiveness in isolated perfused rat lungs: effects of thoracic irradiation, 135
- Shimizu, Y., see Ishii, M., 107
- Smith, C.A., see Ainsworth, D.M., 145
- Smith, C.A., see Ainsworth, D.M., 163
- Sparling, P.B., see Warren, G.L., 253
- Stein, R.B., see Greer, J.J., 309
- Stewart, D.E., see Bates, J.H.T., 369
- Takishima, T., see Ishii, M., 107
- Takishima, T., see Sasaki, M., 177
- Vachiery, J-L., see Lejeune, P., 123
- Warren, G.L., Cureton, K.J. and Sparling, P.B., Does lung function limit performance in a 24-hour ultramarathon?, 253
- Watkins, N.V., see Schroter, R.C., 357
- Yamaya, M., see Sasaki, M., 177
- Zine Filali, R., see Schroter, R.C., 95

SUBJECT INDEX

- Acid-base balance, 383
- Aerosol, 19, 107
- Airway
 - heat exchange, 95, 357
- Airway resistance, 135, 243
- Airway smooth muscle, 135
- Airways
 - dimension of -, 357
- Allometric relations
 - respiratory -, 31, 265
- Almitrine, 73, 391
- Alphastat, 331
- Alveolar gas
 - composition, 219
- Animals
 - alligator, 83, 331
 - camelids, 95, 357
 - cats, 31, 243, 309, 391
 - chicken, 197
 - crayfish, 73
 - dog, 31, 123, 145, 163, 177, 297, 369
 - eel, 45, 59
 - garter snake, 207
 - goat, 31
 - hamster, 7
 - humans, 19, 107, 219, 253, 323, 345
 - lamb, 187
 - mini pig, 31
 - mouse, 31, 265
 - pig, 31
 - rabbit, 281
 - rat, 1, 31, 135
 - seal, 31
 - trout, 229
 - turtle, 383
- Apnea, 207
- Aquatic respiration, 229
- Asthma, 297
- Atropine, 123
- Autonomic nervous system, 123

- Baroreceptor, 73
- Birds
 - respiration in -, 197

- Blood
 - red cell
 - count, 265
- Blood flow
 - cerebral -, 383
 - coronary -, 383
 - in organs, 383
- Brain, 95, 383
- Breathing
 - maximum - capacity, 253
- Breathing pattern, 219, 345
 - tidal volume vs frequency relations, 31

- Capillary circulation, 7
- Carbon dioxide
 - ventilatory response to -, 163, 177, 187, 207, 391
- Cardiac output, 55, 239, 263
- Catecholamines, 359, 373
- Cerebral blood flow, 383
- Chemoreceptors
 - arterial -, 73, 123, 177, 323, 391
 - mechanism of excitation, 391
- Chest wall
 - mechanics, 369
- Collateral ventilation, 297
- Compliance
 - lung -, 135, 369
- Conductance, 197
- Control of breathing, 31, 73
 - Breuer-Hering reflexes, 187, 215
 - carbon dioxide
 - ventilatory response to -, 163, 177, 187, 207, 391
 - chemoreceptors
 - arterial, 73, 123, 177, 323
 - in muscular exercise, 145, 163, 219, 323, 345
 - oxygen
 - ventilatory response to -, 31, 383
- Counter-current gas exchange, 45, 59

- Diaphragm, 145, 163, 187
- Diffusion
 - of gases, 45, 59

- Distribution
 - of blood flow, 383
 - of ventilation, 19, 83, 107, 297
- Egg shell, 197
- Electromyogram, 145, 163
- Endorphins, 187
- Erythrocyte, *see* Red blood cell
- Exercise, muscular, 95, 253
 control of breathing, 145, 163, 219, 323, 345
- Fetal respiration, 187
- Frequency of breathing, *see* Breathing pattern
- Gas bladder, 45, 59
- Gill, 73
- Gill ventilation, 229
- Growth, 265
- Heart frequency
 - changes with respiration, 265
- Heat exchange, 1, 95, 357
- Hematocrit, 7, 265
- Heymans-type chemoreceptors, 73, 123, 177, 323, 391
- Histamine, 297
- Hypercapnia, 163, 177, 187, 207, 391
- Hyperoxia, 73, 123, 391
- Hypoxia, 31, 73, 123, 383, 391
- Inert gas, 83
- Instrumentation, *see* Techniques
- Intercostal muscles, 309
- Intrapulmonary chemoreceptor, 207, 331
- Kidney, 383
- Lactate
 blood, 45, 59
- Lung
 compliance, 369
 mechanoreceptors, 331
 receptors sensitive to CO₂, 207, 331
 surfactant, 281
 volume, 163
- Maximal breathing capacity, 253
- Mechanics of breathing, 229, 309
 airway resistance, 135, 243
 pulmonary compliance, 369
 surfactant, 281
- Models
 - in respiratory physiology, 59
- Muscular exercise, *see* Exercise, muscular
- Neurohumoral theory, 145, 163, 219
- Newborn, 31
- Nicotine, 177
- Oxygen, *see* Diffusion, Hypoxia, Techniques and Tissue respiration
 ventilatory response to -, 31, 383
- Oxygen consumption, 1
 maximal -, 345
- Ozone, 275
- pH, *see* Acid-base balance
- Potassium, 323
- Prostaglandins, 297
- Pulmonary circulation, 123
- Pulmonary receptors, 331
- Q₁₀, 331
- Red cell
 - count, 265
- Regulation of respiration
 see Control of breathing
- Respiratory frequency, *see* Breathing pattern
- Respiratory muscles, 145, 16
- Respiratory quotient, 1
- Respiratory stimuli
 body temperature, 331
 carbon dioxide (hypercapnic) drive, 163, 177, 187, 207, 391
 oxygen drive, 35, 383
 see also Control of breathing
- Rete mirabile, 45, 59
- Reynolds number, 357
- Salting-out effect, 45, 59
- Sleep
 respiration in -, 187
- Specific ventilation, 31
- Stratification in pulmonary gas, 83, 107, 297
- Stretch receptors, 331
- Surfactant, 281
- Techniques in respiratory physiology
 surfactant, 281
 topographic pulmonary function, 83
- Temperature

- effect of body – on breathing, 331
- effect of body – on O₂ consumption, 31
- Tidal volume, *see* Breathing pattern and Lung, volume
- Tissue respiration, 7
- Vagus nerve
 - block or section of –, 123
- Ventilation distribution, 19, 83, 107, 297
- Ventilation/perfusion ratio, 83
- Ventilation requirement (equivalent), 31
- Ventilatory response to hypercapnia, 163, 177, 187, 207, 391
- Ventilatory response to hypoxia, 31, 383
- Water and respiration, 197
- Water loss, 357
- Water-ventilation requirement, *see* Specific ventilation

